

A man from New York City moved to South Dakota and bought a piece of land. He went to the local feed and livestock store and talked to the farmer working there about how he was going to take up chicken farming and asked to buy 100 chicks. A week later he was back again. "I need another 100 chicks," he said. "Boy you are serious about this chicken farming," the farmer told him. "Yeah," the city man replied, "if I can iron out a few problems." "Problems?" asked the farmer. "Yeah," replied the man from the city, "I think I planted that last batch too close together!"

Like the city man, many people do not understand the complexities of agriculture. Too many believe that farming is simply putting a seed in the ground and waiting a while, but modern day farming and ranching are both a little....actually a lot more complicated than that. Modern agriculture is a very technologically advanced "Field" of study....no pun intended.

Today, I first hope to "plant" in you, the undeniable importance of farming and ranching, and second to "pick the cream of the crop" from some of the many new technologies that will insure that the world's agricultural needs continue to be met in the future.

The undeniable importance of farming and ranching can be seen in each of our lives every day. When our alarm clocks go off in the morning, we don't want to get out from under our blanket which is likely made from wool, but the clock, likely made of plastic which is derived from corn or soybeans, keeps buzzing. We go to our closet and pick out our favorite shirt made from cotton. When we get to breakfast, we grab the carton of milk and the box of eggs, that come from dairy and poultry farms. We rush out the door to our car many of which are powered by ethanol which comes from corn. At lunch, we eat our delicious ham sandwich with cheese. At home we make dinner. Hamburgers and beans with peach pie for dessert! Everything we eat is a farming or ranching product as is much of what we use.

In essence agriculture is life because without agriculture, life itself is not possible. According to The United States Census Bureau, there are 7.5 billion people on the planet. That's a lot of mouths to feed, but due to the conservation techniques and technological advances of the past, farmers and ranchers have been able to do so. According to The Agriculture Marketing Resource Center, food production will need to increase by a whopping 70 percent by 2050 to meet the needs of a world population of more than 9.7 billion people as projected by un.org. Farmers and ranchers will only be able to do this with the help of improved conservation and utilizing advanced technology; just as they have in the past. According to the organization, Animal Smart, in 1940, one farmer was able to produce enough food for 19 people, today one farmer is able to produce enough food for 155 people. Yields have increased dramatically since 1940, when our world population was less than 1/3<sup>rd</sup> of what it is today.

Elias Derby, an early American colonial merchant, once said, "A fertile soil alone does not carry agriculture to perfection." Mr. Derby recognized way back then that farmers and ranchers had a long way to go to reach agricultural perfection. Many new tools help us to get closer to that goal. As far as the cream of the crop, let me just briefly mention a few.

One of the newest technologies is minichromosomal technology. This allows a geneticist to add hundreds of traits to a plant including, drought tolerance and plants being able to grow in more cramped spaces. This helps overall yields improve without altering the plant's original chromosomes.

One new ranching technology is automatic weighing and sorting systems. This allows ranchers to more accurately price animals and keep track of herds' weights. This helps lower human error while making ranching easier and more profitable.

Cover crop farming is a technique that is recently on the rise. This allows for the planting of a "cover crop" when the field is not in use. This helps slow erosion, improve soil health, and enhance water availability.

Vertical farming is another type of advance that helps save land. This allows crops to be grown in a small area. This helps produce cheaper and fresher foods everywhere.

Farm based renewable energies, such as biomass, biodiesel, and ethanol will help us meet our future transportation needs. Farmers even harvest the wind that blows over their crops this helps the environment and lessens our oil dependence.

Federal Conservation programs such as The North American Wetlands Conservation Act, The Forest Legacy Program, the Endangered Species Habitat Grants, allow for the conservation of our land, water, soil, and other natural resources. This helps protect the limited resources of our planet.

Fast forward three weeks- the farmer says to the man as he walks into the feed and livestock store, "It's been awhile since I've seen you. Do you now have all your ducks in a row?" "Yes", replies the city man, "but they aren't growing any better than the chicks" Future Ag technology will not be simple, but the farmers and ranchers of the future will use it to continue to support the needs of an ever growing world.